

QUARTERLY GROUND WATER MONITORING REPORT

**YAKIMA AGRICULTURAL RESEARCH LABORATORY
QUARTER NUMBER 4 - MAY, 1991**

JULY 30, 1991
Our Project Number 90042

Prepared for

U.S. Department of Agriculture

USEPA SF



1599697

HONG WEST & ASSOCIATES
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HONG WEST & ASSOCIATES

• Geotechnical Engineering • Hydrogeology • Materials Testing • Construction Inspection •

July 30, 1991

Lyndia Countee, Chief
Service Contracts Section, CAD
U.S.D.A.
6303 Ivy Lane, Room 762
~~Greenbelt MD 20770-1433~~

RECEIVED

RE: Quarterly Monitoring Report # 4
May, 1991
Contract No. 53-3K06-0-24
Yakima Agricultural Research Laboratory

AUG 14 1992

SUPERFUND

Dear Lyndia:

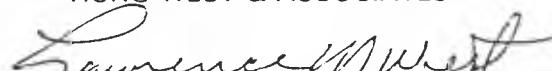
Attached please find one (1) copy of Hong West & Associates' *Quarterly Monitoring Report # 4*, submitted for USDA's use during the on-going RCRA Clean Closure effort. The Report is submitted in partial fulfillment of our contract with U.S.D.A. under Task 17. As required, five (5) copies of the Report have been transmitted to Mr. Alvin Humphrey of USDA for technical review and report dissemination.

In summary, the fourth monitoring did not detect pesticides in ground water.

Should there be any questions or comments concerning this Report submittal, please direct them to myself or Doug Geller.

Respectfully submitted;

HONG WEST & ASSOCIATES


Larry West, Vice-President
Project Director

LW/dg

cc: G. Sundstrom
A. Humphrey
D. Goldman
G. Rosenthal

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1.0 Monitoring System Summary

Three additional ground water monitoring wells were installed at the YARL site during June and July of 1990. These in, combination with the four wells installed during the previous study (Biospherics, Inc. 1988), complete the RCRA detection monitoring system required for the Clean Closure effort.

Details of the new wells appear in a separate report (Well Construction Report, August 29, 1990). To summarize, two of the new wells were screened at intervals similar to the other four wells (the upper-most 10 feet of the site aquifer). ~~The third well was installed as a deep sampling piezometer at 125 feet to provide information regarding vertical hydraulic and chemical gradients within the upper aquifer.~~

The approved Sampling and Analysis Plan includes one year (5 rounds) of quarterly ground water monitoring, sampling and analysis for a variety of indicator parameters, organic and inorganic compounds. Three previous Quarterly Reports have been submitted. This report documents the fourth quarterly monitoring results. The objectives of the monitoring are as follows:

1. Determine depth to ground water and direction of ground water flow monthly.
2. Quantify ground water quality up-gradient and down-gradient from the former waste management area on a quarterly basis. This sampling should screen for indicator parameters and a specified list of organic and inorganic compounds.
3. Provide substantive data for hydrogeologic evaluation, risk assessment and final site closure.

2.0 Monitoring Procedures

2.1 Well Monitoring

The YARL site was visited on May 6, 1991 by the Hong West Team for the purpose of conducting the fourth quarterly ground water monitoring and sampling field work. As per the approved Sampling and Analysis plan, a specific procedure was followed. First, water levels were taken in all the wells, with measurements made to the nearest .01 foot. Between each measurement, the well probe was decontaminated with a methanol wash followed by a distilled water rinse, to minimize the potential for well cross-contamination.

2.2 Well Purging

Once the static water levels were obtained, well purging and sampling commenced. The predetermined sampling order was followed, beginning with up-gradient and off-gradient wells and proceeding to wells directly down-gradient from the former septic tank and drainfield areas. Although not physically closest to these source areas, MW-C was sampled last because of its prior history of low detectable levels of volatile organics. The following sampling order was followed:

1. MW-D
2. MW-G

3. MW-B
4. MW-F
5. MW-E
6. MW-A
7. MW-C

Each well was purged using the dedicated Well Wizard pumps driven by an automatic controller which sent regular, periodic surges of nitrogen gas to displace the ground water to the surface via the pump's teflon tubing. During well purging, the pumped water was monitored for pH, temperature and conductivity. Purging was continued for a minimum of 5 well volumes and until the indicator parameters stabilized within +/- 10%.

2.3 Well Sampling

As per the approved Sampling and Analysis plan, samples were withdrawn from each well sequentially in decreasing order of volatility and instability, beginning with volatile organics (into 40 ml glass vials for 8240 analysis) then pesticides (into 1 gallon amber bottles for 8080, 8140 and 8150 analyses) and metals (500 ml poly cubes for 6010, 7000 and 7470 analyses).

After each well was sampled, the bottles were sealed with Chain of Custody seals, labeled and placed in iced coolers for priority shipment to the laboratory. A chain of custody was filled out at the same time and signed by the sampling technician. A field blank (prepared in the field) and trip blank (filled in the lab and shipped to and from the field) were added to the samples prior to shipment. A duplicate from MW-D (90042-0590-D2) was also taken.

The sample numbering scheme is as follows:

90042-0591-A1 refers to HWA project number 90042, May, 1991, sample number one from Monitoring Well A.

2.4 Split Sample Collection

The Environmental Protection Agency (E.P.A.) arranged for split sample collection during the May 6, 1991 sampling event. Julie Howe and Ben Farrell from PRC Environmental Management, Inc., Seattle, Washington obtained split samples from MW-D, MW-G, MW-A, MW-F and MW-E and observed the Hong West team's sampling procedures as part of a routine Operation and Maintenance inspection performed at YARL. Results of the inspection will be included in a separate report by PRC, Inc. submitted to EPA Region 10. This report will be discussed in HWA's final site closure report.

The remainder of this report (with the exception of monthly water levels) is based on the May sampling.

3.0 Ground Water Observations

There is no history of high levels of ground water contamination at YARL; hence, sampling was performed at a personal safety level of D. During ground water sampling, no unusual water discoloration or odor was observed. The weather was seasonally warm, with temperatures in the 70s by early afternoon. A trace of precipitation had occurred in the Yakima area during the previous two weeks.

Ground water levels were measured on May 6, 1991 (sampling event), June 13, 1991, and July 16, 1991. Water level depths averaged approximately 36 feet and flow was generally toward the southeast and east-southeast under a gradient of .004 ft/ft. The ground water contours for May, June and July are shown in Figures 2-A, 2-B and 2-C, respectively. Contours show the characteristic flow direction across the site from easterly to southeasterly, with the previously observed shift from southerly to southeasterly absent. Original field monitoring sheets are presented in Appendix 2-1.

As observed previously, the water level at the deep aquifer zone piezometer, MW-F, was significantly higher than the upper aquifer zone monitoring well adjacent to it (MW-E), indicating the presence of a vertical gradient within the upper-most aquifer. To obtain an estimate of the vertical gradient, the difference in water table elevation in each well is divided by the elevation change between the top of each screened interval in the two wells:

<u>May, 1991</u>	<u>June, 1991</u>	<u>July, 1991</u>
.76	.65	2.43
----- = .009	----- = .008	----- = .028
85.34	85.34	85.34

Thus, the average vertical gradient is .015 ft/per foot of hydraulic head in the aquifer interval between the deepest and shallowest screen elevation. Because the measured water level in the deep piezometer was higher than in the shallow well, the inferred vertical hydraulic gradient is upward, indicating the site is located in an area of ground water discharge. The difference between MW-E and MW-F water levels was unusually large during the July monitoring.

Data from MW-E was not used to construct Figures 2-A, 2-B and 2-C because of its position deep within the upper-most aquifer. Data from MW-B was not used because measured water levels in this well have consistently produced anomalous apparent flow patterns.

4.0 Analytical Methods and Results

For a complete description of each analytical method, refer to the Project Plan and Sampling and Analysis Plan. In summary, each sample was analyzed for a variety of organic and inorganic contaminants including:

- TCL Volatile Organics EPA method 8240
- Chlorinated Pesticides EPA method 8080
- Herbicides/Organophosphate Insecticides EPA methods 8150 and 8140
- TCL Metals EPA Method 6010, 7444, 7000

Analytical results are presented in Appendix 2-2.

5.0 Interpretation of Results

5.1 TCL Volatile Organics

No volatile organics were detected in any of the samples taken or in the trip blank or field blank samples. Full analytical results are presented in Appendix 2-2.

5.2 Pesticides, Herbicides and Insecticides

Of the 33 compounds analyzed for, none were detected in any of the well samples. None were detected in the trip blank or field blank samples.

The November, 1990 monitoring event represented the first pesticide detections in ground water at YARL. These low to very low parts-per-billion levels were not confirmed during the fourth quarter monitoring.

5.3 TCL Metals

Detectable levels of some metals were recorded (for example calcium, magnesium and Sodium), however none of the concentrations exceed federal or state ground water standards for specific metals for the state of Washington.

No other contaminants of concern were identified during the May, 1991 monitoring event. Analytical methodology, chronology and a non-conformance summary appear in Appendix 2-2. Non-conformances are summarized at the beginning of the laboratory report in Appendix 2-2.

FIGURES

YARL Ground Water Level 5-6-91

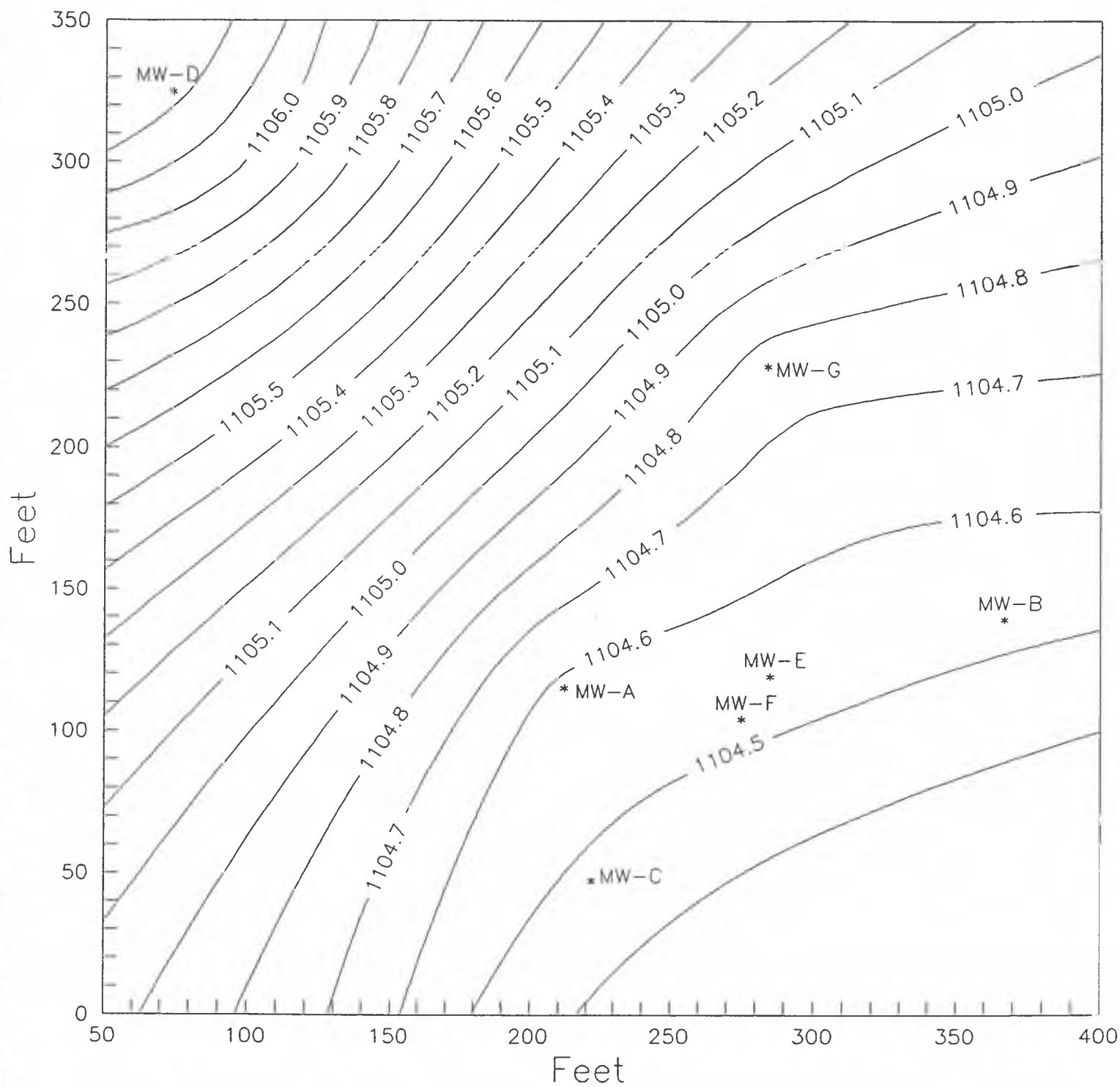


Figure 2-A

YARL Ground Water Level 6-13-91

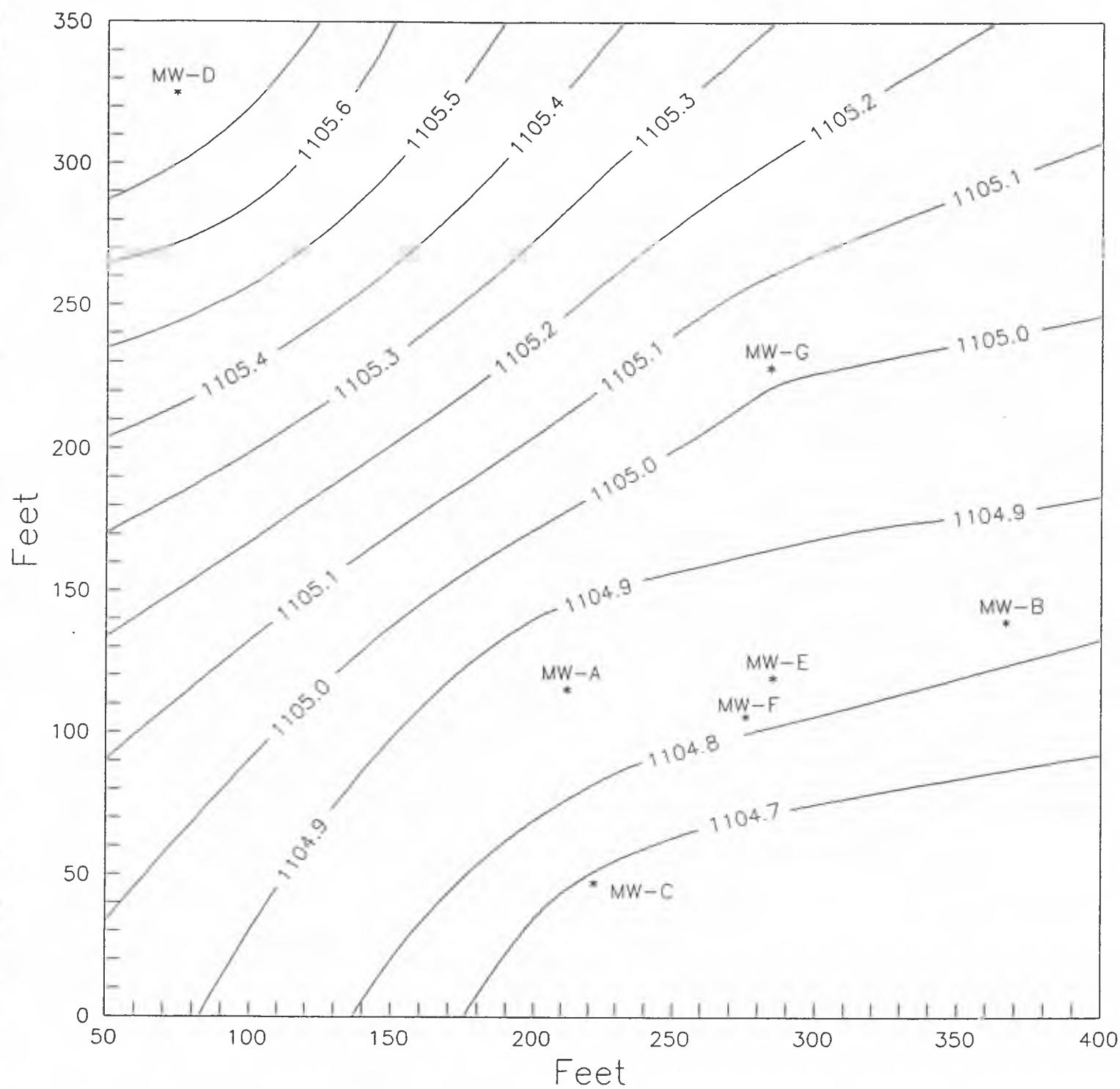


Figure 2-B

YARL Ground Water Level 7-16-91

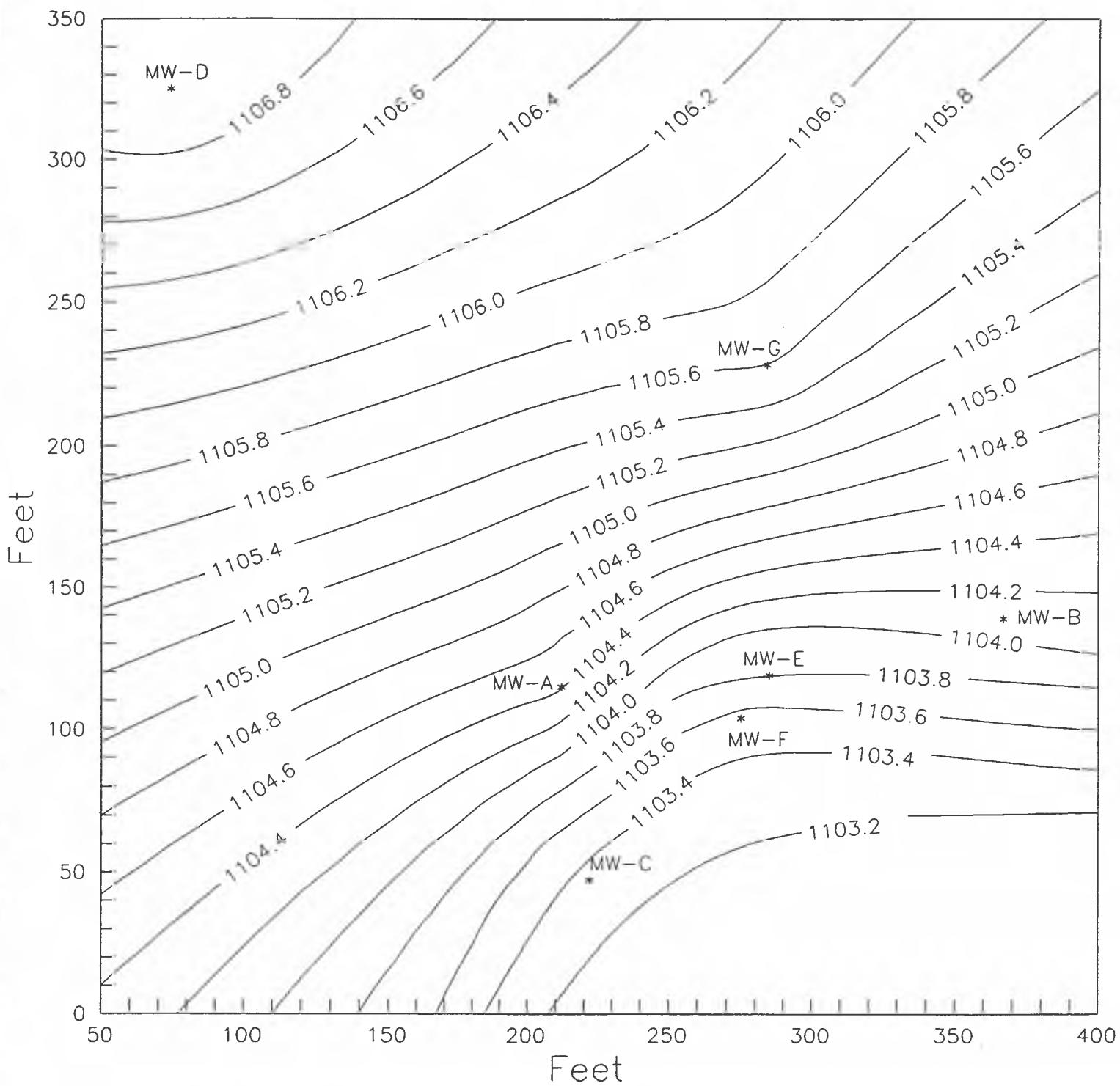


Figure 2-C

YARL Water Level Database

TOC	Elevations in Feet						
	MW-A	MW-B	MW-C	MW-D	MW-E	MW-F	MW-G
Jun-88	1141.54	1141.94	1140.98	1141.00	1141.03	1141.28	1142.43
Jul-88	1106.18	1106.36	1106.04	1107.19			
Aug-88	1106.43	1106.21	1106.23	1107.43			
Sep-88	1106.60	1106.78	1106.43	1107.66			
Dec-88	1106.59	1106.78	1106.50	1107.74			
Mar-89	1105.72	1105.90	1105.54	1106.71			
Jun-89	1105.16	1105.35	1104.98	1106.25			
Sep-89	1105.23	1105.48	1105.11	1105.40			
Mar-90	1106.57	1106.74	1106.37	1107.64			
25-Jun-90	1104.98	1105.14	1104.78	1106.06			
7-Aug-90	1105.47	1105.62	1105.33	1106.45	1106.49	1106.05	1105.69
4-Sep-90	1106.64	1106.70	1106.32	1107.32	1107.15	1106.13	1106.28
22-Oct-90	1106.33	1106.51	1106.13	1107.25	1106.82	1106.26	1106.48
14-Nov-90	1106.18	1106.34	1106.10	1107.05	1106.77	1106.18	1106.38
12-Dec-90	1106.86	1106.85	1106.51	1107.30	1107.39	1106.34	1106.52
3-Jan-91	1105.46	1105.64	1105.26	1106.27	1106.13	1105.38	1105.57
#20-Feb-91	1105.38	1105.33	*1105.08	1106.06	1105.91	1105.26	1105.38
13-Mar-91	1105.81	1105.79	1107.46	1106.40	1105.06	1106.79	1104.93
4-Apr-91	1105.65	1105.63	1105.37	1106.21	1106.36	1105.16	1105.23
6-May-91	1104.49	1104.64	1104.38	1105.60	1105.23	1104.43	1104.63
13-Jun-91	1104.57	1104.76	1104.43	1106.27	1105.29	1104.53	1104.75
16-Jul-91	1104.80	1105.02	1104.66	1105.80	1105.46	1104.81	1105.01
	*1104.44	1105.64	1103.27	1107.00	1105.81	1103.38	1105.63

* Corrected value to average water level drop.

Original reading error.

Bad data. No contour map constructed for this date.

APPENDIX 2-1

FIELD MONITORING DATA SHEETS

HONG WEST & ASSOCIATES

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Quarter No. 3 sample

FIELD MONITORING DATA SHEET

PROJECT NAME: YARL

PROJECT NUMBER: 90042

PAGE / OF 2

WEATHER: SUNNY 65°

LOCATION: 3706 W. NOB HILL

ADDRESS: YAKIMA, WASH.

DATE: 5-6-91

CLIENT: USPA

WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
D	5-6-91 0736	1141.00	N.A.	46'	34.73	1106.27	2
G	5-6-91 1020	1142.43	N.A.	59'	37.68	1104.75	1
B	105	1141.94	N.A.	47'	37.18	1104.76	1.5
A	1145	1141.54	N.A.	42	36.97	1104.57	1

WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	APPROX. RINSE METH.	ELASPED T FLOW, GPM	95% EQ.
D	5-6-91 0736	WELL PURGED	3	N.A.	<5	
G	5-6-91 1020	"	"	"	"	
B	105	"	"	"	"	
A	1145	"	"	"	"	

WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER PLAST
D	5-6-91 0736	90042-0581 D1*		8240			6010 METALS		8140 P-50 F08Q
G	5-6-91 1020	G1		"			"		"
B	105	B1		"			"		"
A	1145	A1		"			"		"

INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	(AFTER STABILIZATION)			(AFTER SAMPLING)		
		TEMP	COND.	pH	TEMP	COND.	pH
D	5-6-91 0736	14° C	919	7.33	N.A.	—	→
G	5-6-91 1020	14.5°	701	7.88	"	"	"
B	105	14°	961	7.62	"	"	"
A	1145	15°	1034	7.32	"	"	"

COMMENTS: * Duplicate sample taken

R. Hyland of se/e sampled wells

PRC Environmental Collected Split samples

NAME: Doug Geller

HONG WEST & ASSOCIATES

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FIELD MONITORING DATA SHEET

PROJECT NAME: YARL

PROJECT NUMBER: 90042

PAGE 2 OF 2

WEATHER: SUNNY 65°

YARL
LOCATION: 3706 W. Nob Hill
ADDRESS: Yakima, WA.
DATE: 5-6-91
CLIENT: USDA

WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
F	5-6-91 0758	1141.28	N.A.	49'	36.75'	1104.53	2
E	0802	1141.03	N.A.	168'	35.74'	1105.29	16
C	0811	1140.98	N.A.	42'	36.55'	1104.43	1

WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	APPROX. RINSE METH.	ELASPED T FLOW, GPM	95% EQ.
F	5-6-91 1255	well Wizard	3	N.A.	<5	
E	1345	"	"	"	"	
C	1650	"	"	"	"	

WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER	1 GAL PLAST
F	1255	90042-0541 F1		8240			metals		8280 8140 E1-20	
E	1345	E1		"			"		"	
C	1650	C1		"			"		"	

INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	TEMP	(AFTER STABILIZATION) COND.	pH	(AFTER SAMPLING) TEMP	COND.	pH
F	1255	15°C	1046	7.60			
E	1345	15°	733	7.99			
C	1650	15°	997	7.68			

COMMENTS:

R. Hyland collected samples.

PRC collected split samples

NAME: Doug Geller

HONG WEST & ASSOCIATES

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JUNE WATER LEVELS

FIELD MONITORING DATA SHEET

PROJECT NAME: YARL

PROJECT NUMBER: 90042

PAGE 1 OF 2

WEATHER: Sunny; 60° F

3706 W. Nob Hill
LOCATION: Volcano
ADDRESS:
DATE: 6-13-91
CLIENT: USDA

WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
D	6-13-91 1105	1141.0	N.A.	46'	35.2'	1105.80	
G	11:11	1142.43	N.A.	50'	37.42'	1105.01	
B	11:15	1141.94	N.A.	47'	36.92'	1105.02	
A	11:27	1141.54	N.A.	42'	36.74'	1104.80	

WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	RINSE METH.	APPROX. FLOW, GPM	ELASPED T 95% EQ.

WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER PLAST

INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	TEMP	(AFTER STABILIZATION) COND.	pH	TEMP	(AFTER SAMPLING) COND.	pH

COMMENTS: (water level monitoring only)

NAME:

Pat Dunn

HONG WEST & ASSOCIATES

* Geotechnical Engineering • Hydrogeology • Materials Testing • Construction Inspection *

JUNE WATER LEVELS

FIELD MONITORING DATA SHEET

PROJECT NAME: *Yakima River*
PROJECT NUMBER:
PAGE 2 OF 2

WEATHER:

LOCATION: 3706 W. 4th ST.
ADDRESS: YAKIMA, WA.
DATE: 6-13-91
CLIENT: USDA

WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H ₂ O	WATER ELEV.	GALLONS IN WELL
F	6-13-91 11:33	1141.28	N.A.	49'	36.47'	1104.81	
E	11:38	1142.43	N.A.	128'	35.57'	1105.46	
C	11:40	1140.98	N.A.	42'	36.32'	1104.66	

WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	APPROX. RINSE FLOW, GPM	ELASPED T 95% EQ.

WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER PLAST

INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	TEMP	(AFTER STABILIZATION) COND.	pH	TEMP	(AFTER SAMPLING) COND.	pH

COMMENTS:

NAME: *Pat Dunn*

HONG WEST & ASSOCIATES

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JULY '91 WATER LEVEL

FIELD MONITORING DATA SHEET

PROJECT NAME: YAKIMA
PROJECT NUMBER: 90042

PAGE 1 OF 2 WEATHER: SUNNY 90°

LOCATION: 3706 W. NO. HILL
ADDRESS: YAKIMA, WA ^{BLVD.}
DATE: 7-16-91
CLIENT: USDA

WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
D	7-16-91 905	1141.0	N.A.		34.0	1107.00	
G	7/11	1142.43	N.A.		36.8	1105.63	
R	7/16	1141.94	N.A.		36.30	1105.64	
A	7/22	1141.54	N.A.		32.10	1109.44	

WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	APPROX. RINSE METH.	ELASPED T FLOW, GPM	95% EQ.

WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER PLAST

INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	TEMP	(AFTER STABILIZATION) COND.	pH	TEMP	(AFTER SAMPLING) COND.	pH

COMMENTS: (water level monitoring only)

NAME: STEVE DALOS

HONG WEST & ASSOCIATES

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JULY '91 WATER LOG

FIELD MONITORING DATA SHEET

PROJECT NAME: YARL

PROJECT NUMBER: 90042

PAGE 2 OF 2

WEATHER: SUNNY 90°

LOCATION: 3706 W. NO. HILL
ADDRESS: YACIMA, WA.
DATE: 7-16-91
CLIENT: USDA

WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
F	7-16-91 930	1141.28	N.A.		37.90	1103.38	
E	934	1141.03	N.A.		35.22	1105.81	
C	929	1140.98	N.A.		37.71	1103.27	

WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	APPROX. RINSE METH.	ELASPED T FLOW, GPM	95% EQ.

WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER PLAST

INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	TEMP	(AFTER STABILIZATION) COND.	pH	TEMP	(AFTER SAMPLING) COND.	pH

COMMENTS:

NAME:

APPENDIX 2-2

ORIGINAL LABORATORY DATA AND CHAIN OF CUSTODY



BIOSPHERICS[®] INCORPORATED

Technologies for Environment and Health

June 21, 1991

Mr. Doug Geller
Hong West & Associates
157 Yesler Way
Suite 505
Seattle, Washington 98104

RE: Lab # 91-05-0916

Dear Mr. Geller:

Enclosed please find the results from analyses performed on recently received samples.

If you have any questions concerning the results, please do not hesitate to call me.

Sincerely,

Lee R. Zehner
Lee R. Zehner, Ph.D. (fmr)
Director
Laboratory Division

LZ:rg
enclosure

BIOSPHERICS INCORPORATED

CLIENT: Hong West

DATE COLLECTED: May 6, 1991

DATE RECEIVED: May 9, 1991

MATRIX: Water

LAB I.D.: 91-05-0916

Analytical Methodology/Sample Chronicle

<u>Parameter</u>	<u>Method</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
Metals	EPA 6010/7000's	5/15/91	5/14-29/91
Mercury	EPA 7470	5/21/91	5/21/91
Pesticides/PCB's	EPA 8080	5/10/91	5/13-14/91
Organophosphorus Pesticides	EPA 8140	5/13/91	5/16/91
Volatile Organics	EPA 8240		5/18/91
Herbicides	EPA 8150	5/13/91	5/15/91

Non-conformance Summary

Pesticides/ PCB's

Endrin yielded low recoveries (<56%) in the spike blank, matrix spike, and matrix spike duplicate. Surrogate recoveries were acceptable in all samples. Since holding time expired, samples were not reextracted. Lindane recoveries in the matrix spike and matrix spike duplicate were below acceptable levels (<56%). However, the spike blank was acceptable and the data was released with confidence.

Organophosphorus Pesticides

Due to a spiking error TEPP recovery was low (<40%) in all quality control samples. The TEPP analyses cannot be reported with confidence.

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: May 6, 1991

DATE RECEIVED: May 9, 1991

MATRIX: Water

UNITS: $\mu\text{g/L}$ ~~REPORT NUMBER~~

Client I.D.:	90042-0591-D1	90042-0591-D2	90042-0591-G1	90042-0591-B1
Lab I.D.:	1	2	3	4
Parameter:				
Aluminum	<200	<200	<200	<200
Antimony	<60	<60	<60	<60
Arsenic	<10	<10	<10	<10
Barium	57.3	<50	<50	<50
Beryllium	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0
Calcium	73500	73700	74200	89400
Chromium	<10	<10	<10	<10
Cobalt	<40	<40	<40	<40
Copper	<25	<25	<25	<25
Iron	<100	<100	<100	<100
Lead	<3.0	<3.0	<3.0	<3.0
Magnesium	45700	45900	46600	54800
Manganese	<15	<15	<15	<15
Mercury	<0.2	<0.2	<0.2	<0.2
Nickel	<40	<40	<40	<40

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: May 6, 1991

DATE RECEIVED: May 9, 1991

MATRIX: Water

UNITS: $\mu\text{g/L}$

LAB ID.: 91-05-0916

Client I.D.:	90042-0591-A1	90042-0591-F1	90042-0591-E1	90042-0591-C1
Lab I.D.:	5	6	7	8

Parameter:

Aluminum	<200	<200	<200	<200
Antimony	<60	<60	<60	<60
Arsenic	<10	<10	<10	<10
Barium	<50	<50	<50	<50
Beryllium	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0
Calcium	76000	78200	59300	73300
Chromium	<10	<10	<10	<10
Cobalt	<40	<40	<40	<40
Copper	<25	<25	<25	<25
Iron	<100	<100	<100	<100
Lead	3.5	<3.0	<3.0	<3.0
Magnesium	43200	45400	28600	42800
Manganese	<15	<15	<15	<15
Mercury	<0.2	<0.2	<0.2	<0.2
Nickel	<40	<40	<40	<40

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: May 6, 1991

DATE RECEIVED: May 9, 1991

MATRIX: Water

UNITS: $\mu\text{g/L}$

LAB I.D.: 91-05-0916

Client I.D.:	Field Blank	Quantitation Limit
Lab I.D.:	9	
Parameter:		
Aluminum	<200	200
Antimony	<60	60
Arsenic	<10	10
Barium	<50	50
Beryllium	<5.0	5.0
Cadmium	<5.0	5.0
Calcium	<500	500
Chromium	<10	10
Cobalt	<40	40
Copper	<25	25
Iron	<100	100
Lead	<3.0	3.0
Magnesium	<500	500
Manganese	<15	15
Mercury	<0.2	0.2
Nickel	<40	40

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: May 6, 1991

DATE RECEIVED: May 9, 1991

MATRIX: Water

UNITS: $\mu\text{g/L}$

LAB I.D.: 91-05-0916

Client I.D.:	90042-0591-D1	90042-0591-D2	90042-0591-G1	90042-0591-B1
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Lab I.D.:	1	2	3	4
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Parameter:

Potassium	3210	3370	3540	3360
Selenium	<5.0	<5.0	<5.0	<5.0
Silver	<10	<10	<10	<10
Sodium	68000	67700	64300	67000
Thallium	<10	<10	<10	<10
Tin	<30	<30	<30	<30
Vanadium	74.9	71.8	75.8	76.7
Zinc	27.0	<20	<20	22.4

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: May 6, 1991

DATE RECEIVED: May 9, 1991

MATRIX: Water

UNITS: $\mu\text{g/L}$

LAB I.D.: 91-05-0916

Client I.D.:	90042-0591-A1	90042-0591-F1	90042-0591-E1	90042-0591-C1
Lab I.D.:	5	6	7	8
Parameter:				
Potassium	4030	3610	4820	3210
Selenium	<5.0	<5.0	<5.0	<5.0
Silver	<10	<10	<10	<10
Sodium	62500	61800	30100	56000
Thallium	<10	<10	<10	<10
Tin	<30	<30	<30	<30
Vanadium	57.2	71.9	<40	70.3
Zinc	20.3	39.7	<20	27.7

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: May 6, 1991

DATE RECEIVED: May 9, 1991

MATRIX: Water

UNITS: $\mu\text{g/L}$

LAB I.D.: 91-05-0916

Client I.D.:	Field Blank	Quantitation Limit
Lab I.D.:	9	
Parameter:		
Potassium	<100	100
Selenium	<5.0	5.0
Silver	<10	10
Sodium	<500	500
Thallium	<10	10
Tin	<30	30
Vanadium	<40	40
Zinc	23.3	20

ORGANIC ANALYSIS DATA SHEET
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91050916	UNITS:	$\mu\text{g/L}$
LAB No.:	1	DATE COLLECTED:	5/06/91
CLIENT NAME:	Hong West	DATE RECEIVED:	5/09/91
CLIENT I.D.:	90042-0591-D1	DATE EXTRACTED:	5/10/91
REFERRED METHOD:	EPA 8082	DATE ANALYZED:	5/13-14/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec. 66

BQL - Below Practical Quantitation Limit

All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91050916	UNITS:	µg/L
LAB No.:	2	DATE COLLECTED:	5/06/91
CLIENT NAME:	Hong West	DATE RECEIVED:	5/09/91
CLIENT I.D.:	90042-0591-D2	DATE EXTRACTED:	5/10/91
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	5/12/14/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec. 62

BQL - Below Practical Quantitation Limit
All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91050916	UNITS:	$\mu\text{g/L}$
LAB No.:	3	DATE COLLECTED:	5/06/91
CLIENT NAME:	Hong West	DATE RECEIVED:	5/09/91
CLIENT I.D.:	90042-0591-G1	DATE EXTRACTED:	5/10/91
REFERENCED METHOD:	EPA 8081	DATE ANALYZED:	5/12 14/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec. 74

BQL - Below Practical Quantitation Limit

All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91050916	UNITS:	$\mu\text{g/L}$
LAB No.:	4	DATE COLLECTED:	5/06/91
CLIENT NAME:	Hong West	DATE RECEIVED:	5/09/91
CLIENT I.D.:	90042-0591-B1	DATE EXTRACTED:	5/10/91
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	5/13-14/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec. 67

BQL - Below Practical Quantitation Limit
 All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91050916	UNITS:	$\mu\text{g/L}$
LAB No.:	5	DATE COLLECTED:	5/06/91
CLIENT NAME:	Hong West	DATE RECEIVED:	5/09/91
CLIENT I.D.:	90042-0591-A1	DATE EXTRACTED:	5/10/91
REFERENCED METHOD:	EPA 6000	DATE ANALYZED:	5/13 14/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec. 79

BQL - Below Practical Quantitation Limit
All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91050916	UNITS:	$\mu\text{g/L}$
LAB No.:	6	DATE COLLECTED:	5/06/91
CLIENT NAME:	Hong West	DATE RECEIVED:	5/09/91
CLIENT I.D.:	90042-0591-F1	DATE EXTRACTED:	5/10/91
REFERENCED METHOD:	FDA 8080	DATE ANALYZED:	5/13-14/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec. 86

BQL - Below Practical Quantitation Limit
All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91050916	UNITS:	$\mu\text{g/L}$
LAB No.:	7	DATE COLLECTED:	5/06/91
CLIENT NAME:	Hong West	DATE RECEIVED:	5/09/91
CLIENT I.D.:	90042-0591-E1	DATE EXTRACTED:	5/10/91
PREFERRED METHOD:	EPA 8080	DATE ANALYZED:	5/13-14/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec. 68

BQL - Below Practical Quantitation Limit
 All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91050916	UNITS:	$\mu\text{g/L}$
LAB No.:	8	DATE COLLECTED:	5/06/91
CLIENT NAME:	Hong West	DATE RECEIVED:	5/09/91
CLIENT I.D.:	90042-0591-C1	DATE EXTRACTED:	5/10/91
DIFFERENCED METHOD:	FPA 8080	DATE ANALYST:	5/12-14/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

ORGANIC ANALYSIS DATA SHEET
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91050916	UNITS:	$\mu\text{g/L}$
LAB No.:	9	DATE COLLECTED:	5/06/91
CLIENT NAME:	Hong West	DATE RECEIVED:	5/09/91
CLIENT I.D.:	Field Blank	DATE EXTRACTED:	5/10/91
DETERMINED METHOD:	EPA 8080	DATE ANALYZED:	5/13-14/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec. 67

BQL - Below Practical Quantitation Limit
All results qualitatively confirmed by second column

**ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc.

MATRIX: Water

CASE No.: 91-05-0916

UNITS: $\mu\text{g/L}$

LAB No.: 1

DATE COLLECTED: 5/06/91

CLIENT NAME: Hong West & Associates

DATE RECEIVED: 5/09/91

CLIENT I.D.: 90042-0591-D1

DATE EXTRACTED: 5/13/91

REFERENCED METHOD: EPA 8140

DATE ANALYZED: 5/16/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 69

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 2 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West & Associates DATE RECEIVED: 5/09/91
CLIENT I.D.: 90042-0591-D2 DATE EXTRACTED: 5/13/91
REFERENCED METHOD: EPA 8140 DATE ANALYZED: 5/16/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 74

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME: Biospherics Inc.

MATRIX: Water

CASE No.: 91-05-0916

UNITS: $\mu\text{g/L}$

LAB No.: 3

DATE COLLECTED: 5/06/91

CLIENT NAME: Hong West & Associates

DATE RECEIVED: 5/09/91

CLIENT I.D.: 90042-0591-G1

DATE EXTRACTED: 5/13/91

REFERENCED METHOD: EPA 8140

DATE ANALYZED: 5/16/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 88

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc.

MATRIX: Water

CASE No.: 91-05-0916

UNITS: $\mu\text{g/L}$

LAB No.: 4

DATE COLLECTED: 5/06/91

CLIENT NAME: Hong West & Associates

DATE RECEIVED: 5/09/91

CLIENT I.D.: 90042-0591-B1

DATE EXTRACTED: 5/13/91

REFERENCED METHOD: EPA 8140

DATE ANALYZED: 5/16/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 81

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 5 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West & Associates DATE RECEIVED: 5/09/91
CLIENT I.D.: 90042-0591-A1 DATE EXTRACTED: 5/13/91
REFERENCED METHOD: EPA 8140 DATE ANALYZED: 5/16/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 83

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 6 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West & Associates DATE RECEIVED: 5/09/91
CLIENT I.D.: 90042-0591-F1 DATE EXTRACTED: 5/13/91
REFERENCED METHOD: EPA 8140 DATE ANALYZED: 5/16/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 85

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME: Biospherics Inc.

MATRIX: Water

CASE No.: 91-05-0916

UNITS: $\mu\text{g/L}$

LAB No.: 7

DATE COLLECTED: 5/06/91

CLIENT NAME: Hong West & Associates

DATE RECEIVED: 5/09/91

CLIENT I.D.: 90042-0591-E1

DATE EXTRACTED: 5/13/91

REFERENCED METHOD: EPA 8140

DATE ANALYZED: 5/16/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 83

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME: Biospherics Inc.

MATRIX: Water

CASE No.: 91-05-0916

UNITS: $\mu\text{g/L}$

LAB No.: 8

DATE COLLECTED: 5/06/91

CLIENT NAME: Hong West & Associates

DATE RECEIVED: 5/09/91

CLIENT ID.: 90042-0591-C1

DATE EXTRACTED: 5/13/91

REFERENCED METHOD: EPA 8140

DATE ANALYZED: 5/16/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 94

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME: Biospherics Inc.

MATRIX: Water

CASE No.: 91-05-0916

UNITS: $\mu\text{g/L}$

LAB No.: 9

DATE COLLECTED: 5/06/91

CLIENT NAME: Hong West & Associates

DATE RECEIVED: 5/09/91

CLIENT I.D.: Field Blank

DATE EXTRACTED: 5/13/91

REFERENCED METHOD: EPA 8140

DATE ANALYZED: 5/16/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 78

BQL - Below Practical Quantitation Limit

BIOSPHERICS
VOLATILES ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BH726::D3
 Lab. No: BLANK 5/18/91
 Matrix: WATER
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST
 Date Collected:
 Date Analyzed: 5/18/91 12:47

CAS #	Compound Name	Conc(ug/L)		CAS #	Compound Name	Conc(ug/L)	
74-87-3	Chloromethane	10.	N	75-27-4	Bromodichloromethane	5.	N
74-83-9	Bromomethane	10.	N	79-07-5	1,2-Dichloropropene	5.	N
75-01-4	Vinyl Chloride	10.	N	10061-01-5	cis-1,3-Dichloropropene	5.	N
75-00-3	Chloroethane	10.	N	79-01-6	Trichloroethene	5.	N
75-09-2	Methylene Chloride	5.	N	124-48-1	Dibromochloromethane	5.	N
67-64-1	Acetone	100.	N	79-00-5	1,1,2-Trichloroethane	5.	N
75-69-4	Trichlorofluoromethane	5.	N	71-43-2	Benzene	5.	N
75-15-0	Carbon Disulfide	5.	N	10061-02-6	trans-1,3-Dichloropropene	5.	N
107-02-8	Acrolein	50.	N	110-75-8	2-Chloroethyl vinyl ether	10.	N
107-13-1	Acrylonitrile	50.	N	75-25-2	Bromoform	5.	N
75-35-4	1,1-Dichloroethene	5.	N	108-10-1	4-Methyl-2-Pentanone	50.	N
75-34-3	1,1-Dichloroethane	5.	N	591-78-6	2-Hexanone	50.	N
540-59-0	trans-1,2-Dichloroethene	5.	N	127-18-4	Tetrachloroethene	5.	N
67-66-3	Chloroform	5.	N	79-34-5	1,1,2,2-Tetrachloroethane	5.	N
107-06-2	1,2-Dichloroethane	5.	N	108-88-3	Toluene	5.	N
78-93-3	2-Butanone	100.	N	108-90-7	Chlorobenzene	5.	N
71-55-6	1,1,1-Trichloroethane	5.	N	100-41-4	Ethylbenzene	5.	N
56-23-5	Carbon Tetrachloride	5.	N	100-42-5	Styrene	5.	N
108-05-4	Vinyl Acetate	10.	N	1330-20-7	Total Xylenes	5.	N

Qualifier descriptions: N - Compound analyzed for but not detected.

Number reported is the detection limit.

* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS
VOLATILES ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BH727::D4
 Lab. No: 91050916-1
 Matrix: WATER
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST(90042-0591-D1)
 Date Collected: 5/06/91
 Date Analyzed: 5/18/91 13:10

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-93-9	Bromomethane	10. N	78-87-5	1,2-Dichloroethane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	.5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	10. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.

Number reported is the detection limit.

* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS
VOLATILES ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BH728::D4
Lab. No: 91050916-2
Matrix: WATER
Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST(90042-0591-D2)
Date Collected: 5/06/91
Date Analyzed: 5/18/91 13:33

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-67-9	Bromomethane	10. N	78-67-5	1,2-Dichloropropene	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	10. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.

Number reported is the detection limit.

* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS
VOLATILES ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BH729::D4
 Lab. No: 91050916-3
 Matrix: WATER
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST(90042-0591-G1)
 Date Collected: 5/06/91
 Date Analyzed: 5/18/91 13:33

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	79-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	79-07-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	10. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.

Number reported is the detection limit.

* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS
VOLATILES ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BH730::D4
 Lab. No: 91050916-4
 Matrix: WATER
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST(90042-0591-B1)
 Date Collected: 5/06/91
 Date Analyzed: 5/18/91 14:19

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-87-9	Bromomethane	10. N	79-97-5	1,2-Dichloroethane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethylene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethylene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	10. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.

Number reported is the detection limit.

* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS
VOLATILES ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BH731::04
 Lab. No: 91050916-5
 Matrix: WATER
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST(90042-0591-A1)
 Date Collected: 5/06/91
 Date Analyzed: 5/18/91 14:42

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	10. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.

Number reported is the detection limit.

* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS
VOLATILES ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BH732::D4
 Lab. No: 91050916-6
 Matrix: WATER
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST(90042-0591-F1)
 Date Collected: 5/06/91
 Date Analyzed: 5/18/91 15:05

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-93-9	Propanemethane	10. N	78-82-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	10. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.

Number reported is the detection limit.

* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS
VOLATILES ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BH733:::D4
 Lab. No: 91050916-7
 Matrix: WATER
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST(90042-0591-E1)
 Date Collected: 5/06/91
 Date Analyzed: 5/18/91 15:28

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-87-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	10. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.

Number reported is the detection limit.

* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS
VOLATILES ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BH734::D4
 Lab. No: 91050916-8
 Matrix: WATER
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST(90042-0591-C1)
 Date Collected: 5/06/91
 Date Analyzed: 5/18/91 15:51

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloroethane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	10. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.

Number reported is the detection limit.

* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS
VOLATILES ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BH735::D4
Lab. No: 91050916-9
Matrix: WATER
Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST(90042-0591-01)
Date Collected: 5/06/91
Date Analyzed: 5/18/91 16:14

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	79-92-5	1,2-Dichloropropene	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	10. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.

Number reported is the detection limit.

* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS
VOLATILES ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BH736::D4
 Lab. No: 91050916-10
 Matrix: WATER
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST(TRIP BLANK)
 Date Collected: 5/06/91
 Date Analyzed: 5/18/91 16:37

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-82-7	Bromomethane	10. N	76-67-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	10. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.

Number reported is the detection limit.

* - Compound is present but less than detection limit. Should be considered an approximation.

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 1 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West DATE RECEIVED: 5/09/91
CLIENT ID: 90042-0591-D1 DATE EXTRACTED: 5/13/91
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 5/15/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 110

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 2 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West DATE RECEIVED: 5/09/91
CLIENT ID: 90042-0591-D2 DATE EXTRACTED: 5/13/91
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 5/15/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 92

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 3 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West DATE RECEIVED: 5/09/91
CLIENT I.D.: 90042-0591-G1 DATE EXTRACTED: 5/13/91
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 5/15/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 97

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 4 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West DATE RECEIVED: 5/09/91
CLIENT ID.: 90042-0591-B1 DATE EXTRACTED: 5/13/91
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 5/15/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 120

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 5 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West DATE RECEIVED: 5/09/91
CLIENT I.D.: 98842-0591-A1 DATE EXTRACTED: 5/13/91
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 5/15/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 73

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 6 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West DATE RECEIVED: 5/09/91
CLIENT I.D.: 90042-0591-F1 DATE EXTRACTED: 5/13/91
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 5/15/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 110

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 7 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West DATE RECEIVED: 5/09/91
CLIENT I.D.: 90042-0591-E1 DATE EXTRACTED: 5/13/91
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 5/15/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 110

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 8 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West DATE RECEIVED: 5/09/91
CLIENT ID.: 90042 0591 C1 DATE EXTRACTED: 5/12/91
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 5/15/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 120

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water
CASE No.: 91-05-0916 UNITS: $\mu\text{g/L}$
LAB No.: 9 DATE COLLECTED: 5/06/91
CLIENT NAME: Hong West DATE RECEIVED: 5/09/91
CLIENT ID.: Field Blank DATE EXTRACTED: 5/13/91
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 5/15/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 110

BQL - Below Practical Quantitation Limit

Project: Quarterly Sampling Site/AKimer Research Lab
 Client: Doug Heller-Hung West Phone: (206) 774-0106
 Address: 18908 Hwy 99
 Lynnwood, WA 98046

Sampler's Name/Firm: Becky Hylland Sweet-Edwards/Evron
 (206)
 Phone: 485-5000 Sampler's Signature: Rebecca Hylland

Sample Number	Date	Time	Matrix	No. of Containers	Analyses Required							Remarks or Sample Location
					HCl	None	None	None	HNO ₃	HNO ₃		
90042-0591-D1	5/6/91	0915	Water	4	X	X	X	X	X	X		
90042-0591-D2	"	0915	"	3	X	X	X	X	X	X		
90042-0591-G1	"	1020	"	4	X	X	X	X	X	X		
90042-0591-B1	"	1105	"	4	X	X	X	X	X	X		
90042-0591-A1	"	1145	"	4	X	X	X	X	X	X		
90042-0591-F1	"	1255	"	4	X	X	X	X	X	X		
90042-0591-E1	"	1613	"	4	X	X	X	X	X	X		
90042-0591-C1	"	1615	"	4	X	X	X	X	X	X		
90042-0591-O1 Field blank	"	1710	"	4	X	X	X	X	X	X		
Fill blank				2	X	Ø	Ø					

Relinquished by: (Signature) <i>Rebecca Hylland</i>	Date/Time 5/6/91 0900	Received by: (Signature)	Relinquished by: (Signature) <i>Rebecca Hylland</i>	Date/Time 5/6/91	Shipping Carrier: Federal Express
Relinquished by: (Signature) 	Date/Time 	Received by: (Signature)	Received for Laboratory by: <i>Becky Hylland</i>	Date/Time 5/6/91 12:00	Shipping Ticket Number: 8C15214214
Relinquished by: (Signature) 	Date/Time 	Received by: (Signature)	Chain of Custody Seal: (Circle)	Lab Remarks	
			<input checked="" type="radio"/> Intact <input type="radio"/> Broken <input type="radio"/> Absent		